

What Is Claimed Is:

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a nucleotide sequence encoding the T1-R ligand III polypeptide having the amino acid sequence at positions -24 to 139 of SEQ ID NO:2 or the complete amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97859;

(b) a nucleotide sequence encoding the T1-R ligand III polypeptide having the amino acid sequence at positions -24 to 191 of SEQ ID NO:4 or the complete amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97858;

(c) a nucleotide sequence encoding the T1-R ligand III polypeptide having the amino acid sequence at positions -23 to 139 of SEQ ID NO:2 or the complete amino acid sequence excepting the N-terminal methionine encoded by the cDNA clone contained in ATCC Deposit No. 97859;

(d) a nucleotide sequence encoding the T1-R ligand III polypeptide having the amino acid sequence at positions -23 to 191 of SEQ ID NO:4 or the complete amino acid sequence excepting the N-terminal methionine encoded by the cDNA clone contained in ATCC Deposit No. 97858;

(e) a nucleotide sequence encoding the mature form of the T1-R ligand III polypeptide having the amino acid sequence at positions 1 to 139 in SEQ ID NO:2, or as encoded by the cDNA clone contained in the ATCC Deposit No. 97859;

(f) a nucleotide sequence encoding the mature form of the T1-R ligand III polypeptide having the amino acid sequence at positions 1 to 191 in SEQ ID NO:4, or as encoded by the cDNA clone contained in the ATCC Deposit No. 97858;

(g) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), (d), (e) or (f) above.

2. The nucleic acid molecule of claim 1 wherein said polynucleotide has the complete nucleotide sequence in Figures 1A-1B (SEQ ID NO:1) or Figures 2A-2B (SEQ ID NO:3).

3. The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence in Figures 1A-1B (SEQ ID NO:1) or Figures 2A-2B (SEQ ID NO:3) encoding the T1-R ligand III polypeptide having the amino acid sequence in positions -23 to 139 of SEQ ID NO:2 or having the amino acid sequence in positions -23 to 191 of SEQ ID NO:4, respectively.

4. The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence in Figures 1A-1B (SEQ ID NO:1) or Figures 2A-2B (SEQ ID NO:3) encoding the mature T1-R ligand III polypeptide having the amino acid sequence from about 1 to about 139 in SEQ ID NO:2 or having the amino acid sequence from about 1 to about 191 in SEQ ID NO:4, respectively.

5. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of residues n-139 of SEQ ID NO:2, where n is an integer in the range of -23-15;

(b) a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of residues -23-m of SEQ ID NO:2, where m is an integer in the range of 129 to 138;

(c) a nucleotide sequence encoding a polypeptide having the amino acid sequence consisting of residues n-m of SEQ ID NO:2, where n and m are integers as defined respectively in (a) and (b) above; and

(d) a nucleotide sequence encoding a polypeptide consisting of a portion of the complete T1-R ligand III amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97859 wherein said portion excludes from 1 to about 14 amino acids from the amino terminus of said complete amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97859;

(e) a nucleotide sequence encoding a polypeptide consisting of a portion of the complete T1-R ligand III amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97859 wherein said portion excludes from 1 to about 10 amino acids

from the carboxy terminus of said complete amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97859; and

(f) a nucleotide sequence encoding a polypeptide consisting of a portion of the complete T1-R ligand III amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97859 wherein said portion include a combination of any of the amino terminal and carboxy terminal deletions in (d) and (e), above.

6. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of residues n-139 of SEQ ID NO:4, where n is an integer in the range of -23-15;

(b) a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of residues -23-m of SEQ ID NO:4, where m is an integer in the range of 181 to 190;

(c) a nucleotide sequence encoding a polypeptide having the amino acid sequence consisting of residues n-m of SEQ ID NO:4, where n and m are integers as defined respectively in (a) and (b) above; and

(d) a nucleotide sequence encoding a polypeptide consisting of a portion of the complete T1-R ligand III amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97858 wherein said portion excludes from 1 to about 14 amino acids from the amino terminus of said complete amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97858;

(e) a nucleotide sequence encoding a polypeptide consisting of a portion of the complete T1-R ligand III amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97858 wherein said portion excludes from 1 to about 10 amino acids from the carboxy terminus of said complete amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97858; and

(f) a nucleotide sequence encoding a polypeptide consisting of a portion of the complete T1-R ligand III amino acid sequence encoded by the cDNA clone contained in

ATCC Deposit No. 97858 wherein said portion include a combination of any of the amino terminal and carboxy terminal deletions in (d) and (e), above.

7. The nucleic acid molecule of claim 1 wherein said polynucleotide has the complete nucleotide sequence of the cDNA clone contained in ATCC Deposit No. 97859 or in ATCC Deposit No. 97858.

8. The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence encoding the T1-R ligand III polypeptide having the complete amino acid sequence excepting the N-terminal methionine encoded by the cDNA clone contained in ATCC Deposit No. 97859 or in ATCC Deposit No. 97858.

9. The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence encoding the mature T1-R ligand III polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97859 or in ATCC Deposit No. 97858.

10. An isolated nucleic acid molecule comprising a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence identical to a nucleotide sequence in (a), (b), (c), (d) or (e) of claim 1 wherein said polynucleotide which hybridizes does not hybridize under stringent hybridization conditions to a polynucleotide having a nucleotide sequence consisting of only A residues or of only T residues.

11. An isolated nucleic acid molecule comprising a polynucleotide which encodes the amino acid sequence of an epitope-bearing portion of a T1-R ligand III polypeptide having an amino acid sequence in (a), (b), (c) or (d) of claim 1.

12. The isolated nucleic acid molecule of claim 11, which encodes an epitope-bearing portion of a T1-R ligand III polypeptide wherein the amino acid sequence of said portion is selected from the group of sequences in SEQ ID NO:2 consisting of:

about 1 to about 10, about 30 to about 40, about 45 to about 57, about 89 to about 100, about 120 to about 132, and about 150 to about 162.

13. The isolated nucleic acid molecule of claim 11, which encodes an epitope-bearing portion of a T1-R ligand III polypeptide wherein the amino acid sequence of said portion is selected from the group of sequences in SEQ ID NO:4 consisting of: about 1-10, about 30 to about 40, about 45 to about 57, about 89 to about 100, about 120 to about 132, about 155 to about 165, and about 201 to about 212.

14. A method for making a recombinant vector comprising inserting an isolated nucleic acid molecule of claim 1 into a vector.

15. A recombinant vector produced by the method of claim 14.

16. A method of making a recombinant host cell comprising introducing the recombinant vector of claim 15 into a host cell.

17. A recombinant host cell produced by the method of claim 16.

18. A recombinant method for producing a T1-R ligand III polypeptide, comprising culturing the recombinant host cell of claim 17 under conditions such that said polypeptide is expressed and recovering said polypeptide.

19. An isolated T1-R ligand III polypeptide comprising an amino acid sequence at least 95% identical to a sequence selected from the group consisting of:

(a) the amino acid sequence positions -23 to 139 of SEQ ID NO:2 or amino acid sequence positions -23 to 191 of SEQ ID NO:4 or the complete T1-R ligand III amino acid sequence excepting the N-terminal methionine encoded by the cDNA clone contained in ATCC Deposit No. 97859 or in ATCC Deposit No. 97858; and

(b) the amino acid sequence of the mature T1-R ligand III polypeptide having the amino acid sequence at positions 1 to 139 in SEQ ID NO:2 or amino acid sequence at

positions 1 to 191 in SEQ ID NO:4, or as encoded by the cDNA clone contained in the ATCC Deposit No. 97859 or in ATCC Deposit No. 97858.

20. An isolated polypeptide comprising an epitope-bearing portion of the T1-R ligand III protein, wherein said portion is selected from the group consisting of: a polypeptide comprising amino acid residues from about 1 to about 10, about 30 to about 40, about 45 to about 57, about 89 to about 100, about 120 to about 132, and about 150 to about 162 of SEQ ID NO:2.

21. An isolated polypeptide comprising an epitope-bearing portion of the T1-R ligand III protein, wherein said portion is selected from the group consisting of: a polypeptide comprising amino acid residues from about 1-10, about 30 to about 40, about 45 to about 57, about 89 to about 100, about 120 to about 132, about 155 to about 165, and about 201 to about 212.

22. An isolated antibody that binds specifically to a T1-R ligand III polypeptide of claim 19.

23. An isolated nucleic acid molecule comprising a polynucleotide having a sequence at least 95% identical to a sequence selected from the group consisting of:

- (a) the nucleotide sequence of clone HETDW91R (SEQ ID NO:6);
- (b) the nucleotide sequence of clone HSRDN17R (SEQ ID NO:7);
- (c) the nucleotide sequence of a portion of the sequence shown in Figures 1A-1B (SEQ ID NO:1) wherein said portion comprises at least 50 contiguous nucleotides from a nucleotide sequence selected from the group consisting of about 1 to about 100, about 450 to about 615, and about 690 to about 1836; and
- (d) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b) or (c) above.

24. An isolated nucleic acid molecule comprising a polynucleotide having a sequence at least 95% identical to a sequence selected from the group consisting of:

- (a) the nucleotide sequence of clone HETDW91R (SEQ ID NO:6);
- (b) the nucleotide sequence of clone HSRDN17R (SEQ ID NO:7);
- (c) the nucleotide sequence of clone HASAA31R (SEQ ID NO:8);
- (d) the nucleotide sequence of clone HPFCQ85R (SEQ ID NO:9); and

(e) the nucleotide sequence of a portion of the sequence shown in Figures 2A-2B (SEQ ID NO:3) wherein said portion comprises at least 50 contiguous nucleotides from nucleotide about 1 to about 100, about 1000 to about 1390, and about 1430 to about 1513; and

(f) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), (d) or (e) above.